NEW RECORD OF *NANSENIA IBERICA* (SALMONIFORMES: MICROSTOMATIDAE) IN WESTERN MEDITERRANEAN.

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The fishes of the genus *Nansenia* Jordan and Evermann, 1896 have a flabby body, which makes their preservation and classification difficult. The current systematic position of this genus is disputed, since Ahlstrom *et al.* (1984) included it within the Microstomatidae, while Nelson (1984) placed it in the family Bathylagidae, subfamily Microstomatinae. Kawaguchi and Butler (1984) provided a useful revision of the genus *Nansenia*, describing a total of 13 species. Among them, only *N. oblita* (Facciolà, 1887) was cited for the Mediterranean Sea. In 1985 *N. iberica* Matallanas, 1985, a new species for the Mediterranean, was described. Since this first record no more examples of *N. iberica* have been found.

In this paper a new record of *N. iberica* in Majorca (Western Mediterranean) is reported. Morphometric and meristic characters are given and compared to previous described specimens (Matallanas, 1985, 1986a, 1986b) and to other *Nansenia* species (Kawaguchi and Butler, 1984).

Material and methods

On 12 September 1995, during the sampling program on board commercial trawlers carried out within the framework of the EU Project "Discards of the Western Mediterranean Trawl Fleet", one specimen of *N. iberica* was caught off the NW of Majorca. The haul depth was 780-800 m, between the co-ordinates 39°27,1'N 2°02,6'E and 39°35,5'N 2°00,8'E (Fig. 1).

This specimen was fixed in 10% formaldehyde and preserved in 4% formaldehyde. It is deposited in the Centre Oceanogràfic de Balears collection with the number COB 1/1995.

The morphometric characters were measured to the nearest 0.1 mm. The count of the fin rays was difficult because they were split. The poor condition of the specimen complicated the systematic position. The anal fin was missing, the adipose fin was badly deteriorated and it was not possible to find any lateral line scales. The branchial arches were therefore extracted in order to proceed on the gill-rakers count, and a radiography permitted the counting of the vertebrae. The morphology of the opercular apparatus was also examined due to its importance as a taxonomic character (Matallanas, 1986b).

To corroborate the systematic position, the morphometric and meristic characters of our *N. iberica* specimen were compared to those of *Nansenia* species having 4 branchiostegal rays using the NTSYS-pc statistical package (Rohlf, 1992), according to the following steps: standardisation of the data; computing the quantitative average taxonomic distance; clustering of the distance matrix using the UPGMA (Unweighted Pair-Group Method, Arithmetic Average) method. The quantitative average taxonomic distance is one of the most common indexes utilised in numerical taxonomy, due to its reckoning simplicity and easy interpretation (Stefanescu *et al.*, 1991; Rohlf, 1992).

Results and discussion

The specimen, a female of 152 mm of standard length, was ascribed to the *N. iberica* species owing to the combination of the following characters: 4 branchiostegal rays; 46 vertebrae;

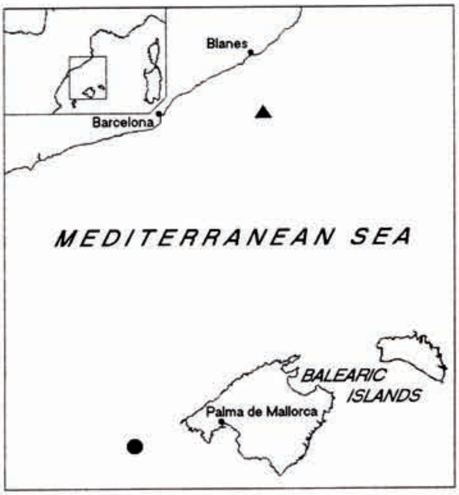

Fig. 1. - Records of *Nansenia iberica*. (▲) Matallanas (1985), 500-600 m; (●) this record, 700-800 m.

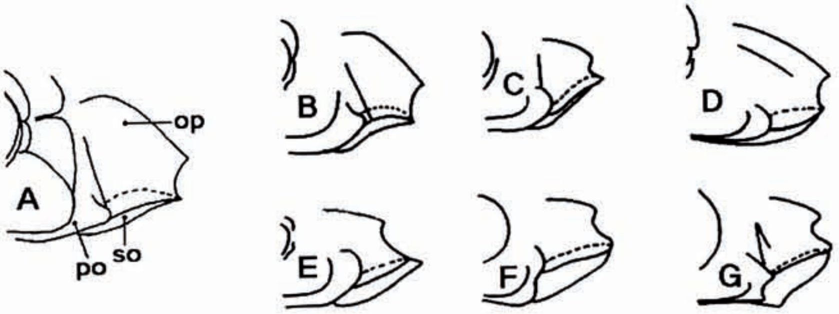

Fig. 2. - Opercular apparatus of the *Nansenia iberica* specimen found (A) and of other species of *Nansenia* (from Matallanas, 1986b). B. *N. iberica*; C. *N. oblita*; D. *N. atlantica*; E. *N. crassa*; F. *N. ardesiaca*; G. *N. tenera*. op = operculum; po = preoperculum; so = suboperculum.

predorsal length 48-49.5% of the standard length; base of the adipose fin densely pigmented. The counts and the measurements are given in table I. According to Matallanas (1985, 1986a), *N. iberica* differs from the other species of *Nansenia* due to the combination of the aforementioned characters, however these partially overlap with those of *N. crassa* Lavenberg, 1965 and *N. ardesiaca* Jordan and Thompson, 1914, and they do not clearly distinguish this species. The base of the adipose fin

Table I. - Morphometric and meristic data of the *Nansenia iberica* specimen found.

Morphometric characters	mm	%SL
Total length (TL)	173.0	
Standard length (SL)	152.0	100.0
Predorsal length (PDL)	75.0	49.3
Preventral length	86.8	57.1
Preanal length	91.0	59.9
Preadipose length	128.5	84.5
Prepectoral length	33.9	22.3
Head length (HL)	32.5	21.4
Eye diameter (ED)	11.7	7.7
Snout length	6.1	4.0
Interorbital length	10.1	6.6
Body depth (BD)	20.5	13.5
Body width (BW)	13.0	8.6
Caudal peduncle length (CPL)	22.0	14.5
Caudal peduncle depth (CPD)	12.2	8.0
Meristic characters		
Dorsal fin rays	10	
Anal fin rays	—	
Pectoral fin rays	12	
Ventral fin rays	10	
Branchiostegal rays	4	
Gill-rakers	36	
Vertebrae	46	

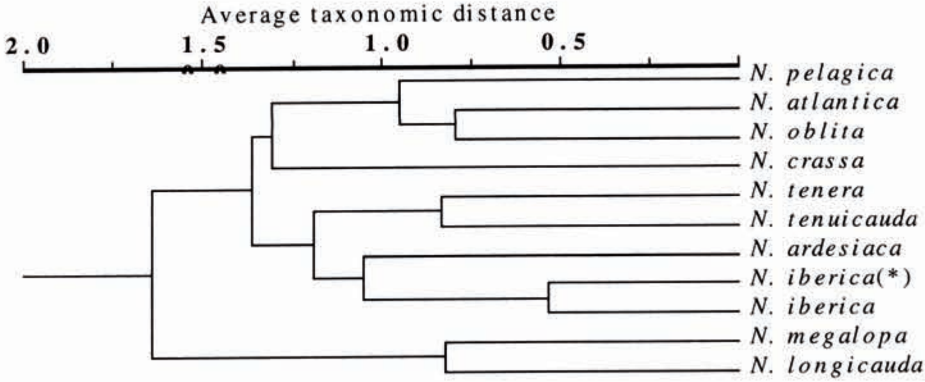

Fig. 3. - UPGMA dendrogram of average taxonomic distance between 10 species of *Nansenia* with 4 branchiostegal rays. (*) specimen reported in this paper.

Table II. - Average measurements and counts of *Nansenia* species with 4 branchiostegal rays and of our *N. iberica* specimen (*). Data from Kawaguchi and Butler (1984), Matallanas (1986a) and Lloris (pers. comm.). See table I for abbreviations.

	N. pelagica	*N. atlantica*	*N. oblita*	*N. crassa*	*N. megalopa*	*N. longicauda*
PDL%SL	54.1	54.4	55.6	54.6	43.2	43.9
CPL%SL	12.4	11.8	10.8	14.1	16.6	17.0
CPD%SL	9.7	8.4	8.9	7.0	5.5	5.0
CPL/CPD	1.3	1.5	1.2	2.0	3.0	3.6
HL/ED	2.6	2.9	3.2	3.7	2.3	2.4
BD/BW	1.5	1.5	1.5	2.0	1.3	1.5
Vertebrae	38.5	41.5	43.5	44.5	44.5	48.5
Gill-rakers	38.5	33.0	33.0	36.0	22.0	25.0
Dorsal fin	9.5	9.5	10.5	9.5	9.5	10.0
Pectoral fin	9.5	12.5	10.5	12.0	12.5	13.5
Ventral fin	10.5	10.5	10.5	10.5	9.5	10.5

	N. tenera	*N. ardesiaca*	*N. tenuicauda*	*N. iberica*	*N. iberica (*)*
PDL%SL	44.6	47.1	44.9	48.8	49.3
CPL%SL	13.8	14.0	13.7	14.9	14.5
CPD%SL	6.4	6.8	4.7	8.2	8.0
CPL/CPD	2.2	2.0	2.9	1.8	1.8
HL/ED	2.6	2.4	2.9	2.6	2.8
BD/BW	1.2	1.2	1.4	1.6	1.6
Vertebrae	42.5	47.0	46.0	46.0	46.0
Gill-rakers	44.5	31.0	40.0	35.5	36.0
Dorsal fin	11.5	9.5	10.5	11.0	10.0
Pectoral fin	11.5	13.0	12.0	11.0	12.0
Ventral fin	11.5	11.0	11.5	10.0	10.0

pigmented should differentiate *N. iberica* from *N. ardesiaca*, but it is relatively difficult to take into account. To separate *N. iberica* from *N. crassa* and *N. ardesiaca* other additional characters have to be considered, such as the greater diameter of the eye (HL/ED = 2.4-2.8 vs. 3.3-4.0) and the wider body (BD/BW = 1.6 vs. 2.0) in the first case; and the deeper body (BD/BW = 1.6 vs. 1.2) and the ventral fin rays count (10 vs. 11) in the second case. Furthermore the morphology of the opercular apparatus (Matallanas, 1986b) separates this species from the others (Fig. 2).

Three characters of our specimen differ significantly from the description of Matallanas (1986a): HL/ED 2.8 vs. 2.4-2.6; P12 vs. 11; D10 vs. 11. These differences could be considered included within the intraspecific variability, which is not well known due to the scarcity of specimen studied. The minor differences of PDL%SL, CPL%SL, HL/ED should be considered negligible.

The values of the average morphometric and meristic data considered in the statistical analysis are reported in table II. The dendrogram relative to the clustering of the quantitative average taxonomic distance (Rohlf, 1992) confirms the attribution of this specimen to the *N. iberica* species (Fig. 3). In the dendrogram 5 distinct groups can be observed:

- *N. pelagica* Kawaguchi & Butler, 1984, *N. atlantica* Blache & Rossignol, 1962, *N. oblita*, insertion of dorsal fin after the middle of body, caudal peduncle short and deep, body slightly compressed and few vertebrae.
- *N. crassa*, is close to the preceding group due to the insertion of dorsal fin and the number of ventral fin rays, but other characters, such as the small eye and the highly compressed body, point to its segregation.
- *N. ardesiaca*, *N. iberica*, *N. iberica*(*), insertion of dorsal fin near the middle of body, caudal peduncle intermediate and relatively large number of vertebrae.
- *N. tenera* Kawaguchi & Butler, 1984, *N. tenuicauda* Kawaguchi & Butler, 1984, caudal peduncle long, eye relatively small and gill-rakers numerous.
- *N. megalopa* Kawaguchi & Butler, 1984, *N. longicauda* Kawaguchi & Butler, 1984, insertion of dorsal fin ahead, caudal peduncle long and slender, large eye and few gill-rakers.

These results confirm the need to consider a combination of several characters for a proper classification of *Nansenia* species. Some of them are particularly useful, such as the ratio of caudal peduncle length to caudal peduncle depth (CPL/CPD), as proposed by Kawaguchi and Butler (1984).

This record extends the distribution area of *N. iberica* from the zone of Blanes (NE Catalonia) to the NW of Majorca, indicating a probable presence of this species in the whole NW Mediterranean. The specimen was found between a depth of 780-800 m, which increases the bathymetric distribution of *N. iberica* with respect to that reported by Matallanas (1986a) (500-600 m). However, Kawaguchi and Butler (1984) and Cohen (1984) attribute epi-mesopelagic habits to the family. Therefore it could be possible that the specimen was caught during the beginning or the end of the haul, when the trawl could fish in the water column.

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